TECH-X FLEX
IP VIDEO OPTION

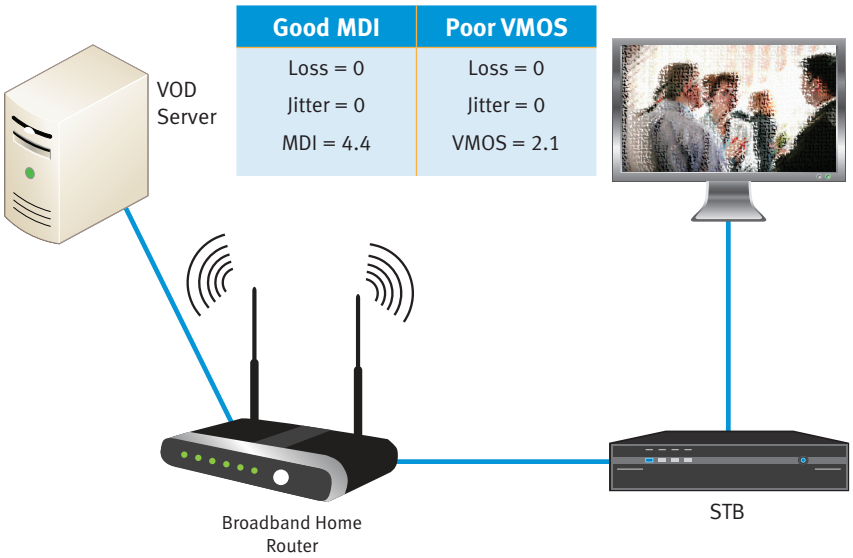
IP Video services have experienced a large growth in recent times with services such as IPTV, Video on Demand (VoD) and DVR sharing now commonplace from service providers. Spirent's Tech-X Flex® quickly and easily measures the customer's Quality of Experience (QoE) so that you can resolve troubles easier and faster with less disruption for the customer.

FEATURES & BENEFITS

- Determine your customer's QoE by analyzing content as well as measuring network and transport metrics
- Works over proprietary Middleware
- Analyze Encrypted IP Video Streams
- Functions over Ethernet and MoCA interfaces
- Provides single quality metrics such as VMOS, A/V MOS, image type, delay factor and more for quick pass/fail determination by novice technicians
- Provides I/B/P frames received, lost, discarded and more for experienced technicians
- Store and transfer results for reference by tier 2/3 support

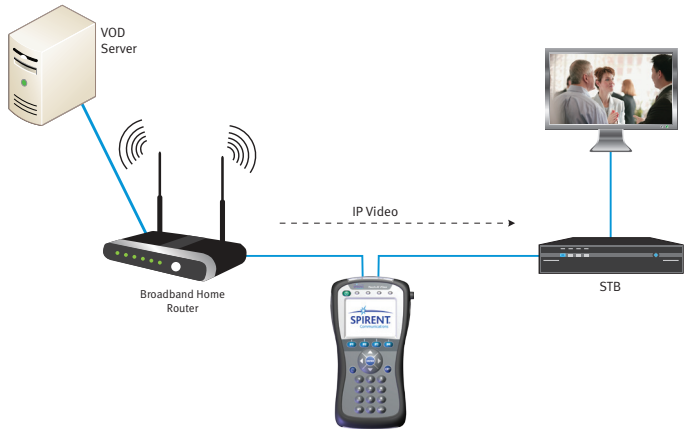
QUALITY OF EXPERIENCE TESTING

When it comes to determining your customer's QoE there is more required than just being able to measure network metrics such as jitter and packet loss. The need to analyze the content within the IP Video streams is important if you truly want to understand the impact it will have on their viewing experience. Even in a perfect network, customers can still suffer from picture issues if there have been problems with the encoding at the Head End Video Server, which a standard MDI score will not detect. Fortunately, Spirent's VMOS score takes account of network, transport and content metrics in order to provide the user with a fast yet reliable indicator of the QoE. In addition, lip sync issues are quickly identified by reviewing the A/V MOS score. Similar to a customer channel surfing, the Tech-X Flex can perform a channel change test, ensuring that the leave, join and channel change time are within standards.



TESTING WHEN PROPRIETARY MIDDLEWARE IS USED

When proprietary middleware is used between the set top box and video server, it is impossible for traditional field test sets to ”pull” the content from the relevant location without knowledge of the signaling mechanisms used between the server and set top box. Tech-X Flex overcomes this issue by employing an in-line/passive approach to IP Video measurements. In this scenario, the customer’s STB is the device that makes the necessary request while the Tech-X passively measures the subsequent video stream. This also has the added benefit of allowing the technician to correlate any poor measurements with the resulting drop in picture quality on the TV screen. When proprietary signaling is not used, the Tech-X Flex can also select video streams for analysis in an out-of-service mode.

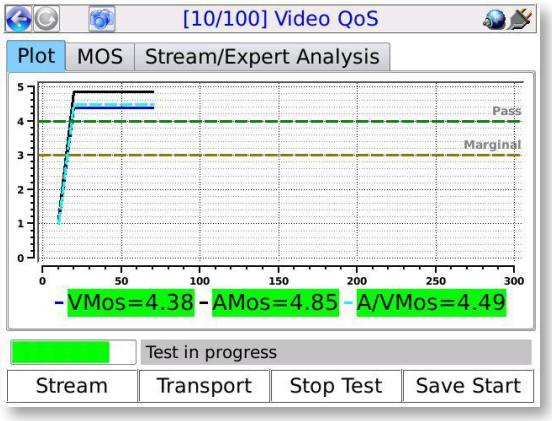


WORKS WITH ENCRYPTED VIDEO STREAMS

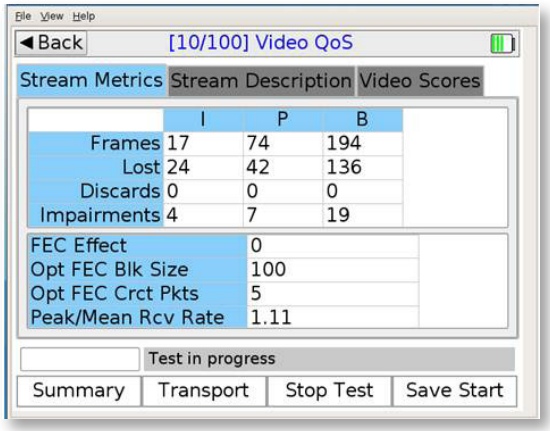
Encrypted video streams are becoming more commonplace as both content and service providers seek to protect revenue. This can create problems when it comes to trying to make measurements on the video streams. Spirent’s solution works on both encrypted and non-encrypted content to ensure maximum performance whenever you’re required to make measurements.

SIMPLISTIC OR DETAILED VIEWS

For many years, field technicians have had little change in the technologies they’ve had to work with. The shift in emphasis from POTS to broadband services such as ISDN and xDSL has been followed by a transformation to IP-based services such as Triple Play. The downside in this is expertise required to support these technologies in the field is somewhat behind the curve. In recognition of this, Spirent’s approach to IP Video testing is to provide the user with the option of viewing a brief summarised version or an in-depth list of all the measured metrics.



Summarzied Analysis



In-Depth Analysis

IP VIDEO SPECIFICATIONS

TEST PARAMETERS	
Tests	Channel quality, Channel change time
Channel Guides	Up to 4
Encapsulation	MPEG2 (MPEG2TS) over UDP, MPEG2 (MPEG2TS) over RTP over UDP, H.264 (MPEG2TS) over RTP over UDP
Codec	UDP, MPEG2, H.264, MPEG 1 Layer II audio, MPEG2 audio, DOLBY AC-3 audio
VIDEO STREAM METRICS	
Video Stream Metrics	• I, B, P Frames Recieved • I, B, P Frames Lost • I, B, P Frame Discards • I, B, P Frames Errored • FEC Effectiveness • Opt FEC Block Size • Opt FEC Correctable Pkts • Ratio of Peak to Mean Bandwidth
Video Stream Description	• Stream Type • Image Size • Image Type • GoP Type • GoP Length Avg • Codec Robustness • Content Sensitivity • Receive Rate • Peak Receive Rate
Perceptual Quality Metrics	• Video MOS (text and graph) • Audio MOS • Audio/Video MOS • Video Service Transmission Quality (VSTQ) • VSPQ • Gap VSPQ • Burst VSPQ • VSMQ • Peak SNR
TRANSPORT METRICS	
Network Stats	• Packets (Received, Lost, Discards) • Frame Rate • Packets OOS • Burst MIU Lost • Burst Duration Avg • Gap MIU Lost • Gap Duration Avg • Channel (Change, Join, Leave)
TR101 MPEG Stats	• Sync Loss • Sync Byte Error • Continuity Error • Transport Header Error • PCR Repetition Error • PCR Discontinuity Error • PTS Error
Jitter/Delay Stats	• MAPDV Avg • PPDV • Delay (Max & Avg) • Jitter (Max & Avg)
Expert Degradation Analysis	• Network Packet Loss • Jitter Buffer Discard • Video Codec Type • Delay

ORDERING INFORMATION	
Tech-X Flex	With 10/100 Ethernet interface for IP Ping, TraceRoute, DHCP/Static Addressing
IP Video Option	Provides IP Video set-top box emulation with results such as VMOS, type of video codec, channel change time, packet loss, latency, jitter, out-of-order and duplicate packets, I/B/P frame counts, etc. **Note 1:** The MoCA module must be purchased to perform measurements over this interface. **Note 2:** The dual MoCA and/or dual Ethernet option must be purchased to perform passive measurements.

SPIRENT SERVICES

Spirent Global Services provides a variety of professional services, support services and education services—all focused on helping customers meet their complex testing and service assurance requirements. For more information, visit the Global Services Website at www.spirent.com or contact your Spirent sales representative.

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